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10/025,750

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Bobby That Dao Ton

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CANADA

EXAMINER

DAVIS, CYNTHIA L

ART UNIT

PAPER NUMBER

2665

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/025,750

Applicant(s)

TON ET AL.

Examiner

Cynthia L Davis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eyuboglu in view of Jappinen.

Regarding claim 1, detecting a failure or a shutdown of a unit; detecting if the failed unit controlled any data sessions before it failed; if the failed GTP-C/S controlled any data sessions before it failed, closing all the data sessions and accounting sessions related to the data sessions is disclosed in Eyuboglu, paragraph 69 (the AT's detect that their the sessions controlled by the failed RNC exist, and close them to negotiate new sessions). The unit being a GTP-C/s in a GGSN is missing from Eyuboglu, however, Jappinen discloses in figure 3, a GGPRS system with redundant GTP units located in the RNCs. It would have been obvious to one skilled in the art at the time of the invention to use the method of Eyuboglu in the system of Jappinen. The motivation would be to deal with the failure of a GTP unit in an RNC.

2. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eyuboglu in view of Jappinen in further view of Budhreja.

Regarding claim 2, detecting a presence of a spare, non-utilized, data session control unit (GTP-C spare) in the GGSN; assigning to the GTP-C spare a role of GTP-

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CA by assigning an IP address previously held by the GTP-C/S that failed to the GTP-C spare; and starting the GTP-C spare as a GTP-C/S is missing from Eyuboglu.

However, Budhrajia discloses in column 1, lines 24-32, a standby telecommunications module being switched to the IP address of the main module in the event of a failure. It would have been obvious to one skilled in the art at the time of the invention to use the method of Budhrajia in the system of Eyuboglu and Jappinen. The motivation would be to load balance by putting re-started sessions on the non-utilized module, which would presumably have sufficient resources for the sessions (Eyuboglu, paragraph 72).

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eyuboglu in view of Jappinen in further view of Naron.

Regarding claim 3, detecting in the GGSN a lack of a heartbeat message sent by the failed GTP-C/s is missing from Eyuboglu. However, Naron discloses in column 11, lines 41-45, monitoring a heartbeat message to detect a system failure. It would have been obvious to one skilled in the art at the time of the invention to use the heartbeat message of Naron in the system of Eyuboglu and Jappinen. The motivation would be to monitor the health of the modules in the network (Eyuboglu, paragraph 70).

4. Claim 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eyuboglu in view of Jappinen in further view of Suumaki.

Regarding claim 4, detecting if the failed GTP-C/S comprises any PDP context before it failed is missing from Eyuboglu. However, Suumaki discloses in column 14, lines 6-12, detecting a PDP context for a session. It would have been obvious to one skilled in the art at the time of the invention to use the detection of Suumaki in the

system of Eyuboglu. The motivation would be to detect QoS information about the session, which would be useful for determining the resources necessary for re-connection (Suumaki, column 3, lines 52-54, see also Eyuboglu, paragraph 72, disclosing load balancing the re-connections in case of failure).

Regarding claim 5, the step of detecting if the failed GTP-C/s comprises any PDP context before it failed, is performed in a master data session control unit (GTP-C/m) of the GGSN is missing from Eyuboglu. However, Suumaki discloses in column 14, lines 6-12, detecting the PDP context for a session. Further, Eyuboglu discloses in paragraph 72 an master resource control agent performing load-balancing. It would have been obvious to one skilled in the art at the time of the invention to use the detection of Suumaki in the control agent of Eyuboglu. The motivation would be to detect QoS information about the session, which would be useful for determining the resources necessary for re-connection (Suumaki, column 3, lines 52-54, see also Eyuboglu, paragraph 72, disclosing load balancing the re-connections in case of failure).

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eyuboglu in view of Jappinen in further view of Okouchi.

Regarding claim 6, transmitting from a master data session control unit (GTP-C/m) of the GGSN to each data session payload unit (GTP-U) of the GGSN a Close Session message requesting that all active data sessions controlled by the GTP-C/S that failed be closed; and closing by each GTP-U of the GGSN all active data sessions controlled by the GTP-C/s that failed is missing from Eyuboglu and Jappinen. However,

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Eyuboglu does disclose in paragraph 69 that sessions belonging to the failed RNC are closed in order to negotiate new sessions. Further, Okouchi discloses in column 22, lines 60-63, a master unit sending a message to slave units to close sessions, and the slave units closing the sessions. It would have been obvious to one skilled in the art at the time of the invention to use the mechanism of Okouchi in the system of Eyuboglu. The motivation would be to centralize the closing of the sessions.

6. Claims 7 and 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eyuboglu in view of Jappinen in further view of Budhraj and Okouchi.

Regarding claim 7, detecting a failure or a shutdown of the main unit; detecting, among all remaining available units, the unit with the least load, and electing the unit with the least load as a fail-over unit for the unit that failed; recovering by the elected fail-over unit information related to the failed unit from other units; and starting the elected unit as a main unit is disclosed in Eyuboglu, paragraph 69 (the AT's detect that their the sessions controlled by the failed RNC exist, and close them to negotiate new sessions) and paragraphs 70 (disclosing designating new default RNCs, which is equivalent to a master unit for that particular RN) and paragraph 72 (disclosing load balancing the new sessions among remaining RNCs). Rebuilding by the elected unit an information database using the information related to the failed unit is missing from Eyuboglu, however, Budhraj discloses in column 3, lines 20-29, a memory that stores information relating to a failed unit in a telecommunications system for use in the event of failure. It would have been obvious to one skilled in the art at the time of the invention to have the backup unit access the information regarding the failed unit as is

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done in Budhraj in the system of Eyuboglu. The motivation would be to allow rapid switching to the backup unit (Budhraj, column 3, lines 42-44). That the unit is the GTP-C/m in a GGSN is missing from Eyuboglu. However, Jappinen discloses in figure 3, a GGPRS system with redundant GTP units located in the RNCs. Further, Okouchi discloses in column 22, lines 60-63, a master unit and slave units in a system. It would have been obvious to one skilled in the art at the time of the invention to use the method of Eyuboglu in the systems of Jappinen and Okouchi. The motivation would be to deal with the failure of a GTP unit in an RNC.

Regarding claim 9, the step of detecting the GTP-C with the least load, comprises the step of: sending a GTP-C failure notification to each remaining GTP-C units of the GGSN is disclosed in Eyuboglu, paragraph 75 (the RNCs communicate routing information, which would include notification of failure, for the purpose of load balancing).

Regarding claim 10, the GTP-C detected to have the least load is a spare, non-utilized, GTP-C unit of the GGSN is missing from Eyuboglu. However, Budhraj discloses in column 1, lines 24-32, a standby telecommunications module being switched to the IP address of the main module in the event of a failure. It would have been obvious to one skilled in the art at the time of the invention to use the method of Budhraj in the system of Eyuboglu and Jappinen. The motivation would be to load balance by putting re-started sessions on the non-utilized module, which would presumably have sufficient resources for the sessions (Eyuboglu, paragraph 72)..

Regarding claim 11, the GTP-C detected to have the least load is a slave GTP-C selected among all active slave GTP-CS of the GGSN is disclosed in Eyuboglu, paragraph 70 (the new reassigned default RNCs are chosen from the active set of RNCs).

Regarding claim 12, closing by the selected slave GTP-C all currently controlled Packet Data Protocol (PDP) Contexts related to its supported data sessions is missing from Eyuboglu. However, Jappinen disclosed in paragraph 30, closing PDP contexts associated with a failed unit. It would have been obvious to one skilled in the art at the time of the invention to close the PDP contexts. The motivation would be to not leave them hanging, thereby wasting resources (Jappinen, paragraph 30).

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eyuboglu in view of Jappinen in further view of Budhraj and Okouchi in further view of Naron.

Regarding claim 8, the step of detecting a failure or a shutdown of the GTP-C/m in the GGSN comprises the step of: detecting in the GGSN a lack of a heartbeat message sent by the failed GTP-C/m. is missing from Eyuboglu. However, Naron discloses in column 11, lines 41-45, monitoring a heartbeat message to detect a system failure. It would have been obvious to one skilled in the art at the time of the invention to use the heartbeat message of Naron in the system of Eyuboglu and Jappinen. The motivation would be to monitor the health of the modules in the network (Eyuboglu, paragraph 70).

8. Claims 13 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jappinen in view of Eyuboglu in further view of Okouchi.

Regarding claim 13, a plurality of GPT units, each being set to controlling a plurality of data sessions for an MS, and a plurality of GPT-Us units for supporting a routing a payload of the data sessions is disclosed in Jappinen, figure 3, elements GPT1-6, and elements 34-35 (showing a typical GPRS system). A master unit detecting a failure or a shutdown of one of the units, the master unit further detecting if the failed unit controlled any data sessions before it failed and if the failed unit controlled all data sessions before it failed is missing from Jappinen. However, Eyuboglu discloses in paragraph 70 a RNC resource controller detecting a failure of an RNC and dealing with the failed RNCs sessions. It would have been obvious to one skilled in the art at the time of the invention to have a master unit detect a failure and the affected sessions in the system of Jappinen. The motivation would be to allow centralized load balancing of the failed sessions (Eyuboglu, paragraph 72). the master unit requesting from the plurality of payload units to close all the data sessions; wherein the payload units respond to the request by closing all accounting sessions related to the data sessions is missing from Jappinen and Eyuboglu. However, Eyuboglu does disclose in paragraph 69 that sessions belonging to the failed RNC are closed in order to negotiate new sessions. Further, Okouchi discloses in column 22, lines 60-63, a master unit sending a message to slave units to close sessions, and the slave units closing the sessions. It would have been obvious to one skilled in the art at the time of the invention to use the mechanism of Okouchi in the system of Eyuboglu. The motivation would be to centralize the closing of the sessions.

Regarding claim 17, the GTP-C/m transmits to each GTP-U of the GGSN a Close Session Request message for requesting that all active data sessions controlled by the GTP-C/s that failed to be closed; and responsive to the Close Session Request message, each GTP-U of the GGSN close all active data sessions controlled by the GTP-C/s that failed is missing from Eyuboglu and Jappinen. However, Eyuboglu does disclose in paragraph 69 that sessions belonging to the failed RNC are closed in order to negotiate new sessions. Further, Okouchi discloses in column 22, lines 60-63, a master unit sending a message to slave units to close sessions, and the slave units closing the sessions. It would have been obvious to one skilled in the art at the time of the invention to use the mechanism of Okouchi in the system of Jappinen and Eyuboglu. The motivation would be to centralize the closing of the sessions.

9. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jappinen in view of Eyuboglu in further view of Okouchi and Budhraja.

Regarding claim 14, the GGSN further comprises a spare, non-utilized, data session control unit (GTP-C spare), and wherein: the GTP-C/m detects a presence of a spare, non-utilized, data session control unit (GTP-C spare) in the GGSN, the GTP-C/m replaces the failed GTP-C/s with the GTP-C spare by assigning an IP address previously held by the GTP-C/s that failed, and a role of GTP-C/S, to the GTP-C spare, and starts the GTP-C spare as a GTP-C/s is missing from Jappinen. However, Budhraja discloses in column 1, lines 24-32, a standby telecommunications module being switched to the IP address of the main module in the event of a failure. It would have been obvious to one skilled in the art at the time of the invention to use the method

of Budhraj is the system of Jappinen. The motivation would be to load balance by putting re-started sessions on the non-utilized module, which would presumably have sufficient resources for the sessions (Eyuboglu, paragraph 72).

10. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jappinen in view of Eyuboglu in further view of Okouchi and Naron.

Regarding claim 15, the GTP-C/m detects the failure or the shutdown of the GTP-C/s by detecting a lack of a heartbeat message sent by the failed GTP-C/s is missing from Jappinen and Eyuboglu. However, Naron discloses in column 11, lines 41-45, monitoring a heartbeat message to detect a system failure. It would have been obvious to one skilled in the art at the time of the invention to use the heartbeat message of Naron in the system of Eyuboglu and Jappinen. The motivation would be to monitor the health of the modules in the network (Eyuboglu, paragraph 70).

11. Claims 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jappinen in view of Eyuboglu in further view of Okouchi and Suumaki.

Regarding claim 16, detecting if the failed GTP-C/s comprises any PDP context before it failed is missing from Jappinen and Eyuboglu. However, Suumaki discloses in column 14, lines 6-12, detecting a PDP context for a session. It would have been obvious to one skilled in the art at the time of the invention to use the detection of Suumaki in the system of Jappinen and Eyuboglu. The motivation would be to detect QoS information about the session, which would be useful for determining the resources necessary for re-connection (Suumaki, column 3, lines 52-54, see also Eyuboglu, paragraph 72, disclosing load balancing the re-connections in case of failure).

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12. Claims 18 and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jappinen in view of Eyuboglu in further view of Mir.

Regarding claim 18, a plurality of data session control units (GTP-Cs) is disclosed in Jappinen, figure 3. A Routing Engine (RE) detecting a failure or a shutdown of the GTP- C/m; wherein the RE in combination with all remaining GTP-CS available in the GGSN further detects the GTP-C with the least load, and elect the GTP-C with the least load as a fail-over unit for the GTP-C/m that failed is missing from Jappinen. However, Eyuboglu discloses in paragraph 70 a Resource Control Agent, which is equivalent to and RE, detecting failure of an RNC and load balancing the reconnections when it reassigns default RNCs to take the place of the failed one. It would have been obvious to one skilled in the art at the time of the invention to use the method of Eyuboglu in the system of Jappinen. The motivation would be to deal with a failed GPT. The elected GTP-C recovers information related to the failed GTP-C/m from the remaining GTP-C units, rebuilds a GTP-C/m information database using the information related to the failed GTP-C/m, and starts acting as a GTP-C/m of the GGSN is missing from Jappinen and Eyuboglu, however, Mir discloses in column 10, lines 59-62, master and secondary units that have memory storing information about each other that may be accessed in the event of a failure. It would have been obvious to one skilled in the art at the time of the invention to have the replacement access information regarding the unit it replaces is done in Mir in the system of Eyuboglu. The motivation would be to maintain data integrity (Mir, column 10, line 59). A master data session control unit (GTP-C/m) is missing from Jappinen. however, Jappinen discloses in figure

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3, a GPRS system with redundant GTP units located in the RNCs. Further, Mir discloses in column 10, line 50, a master unit and slave units in a system. It would have been obvious to one skilled in the art at the time of the invention to use the master-secondary structure of Mir in the system Jappinen and Eyuboglu. The motivation would be to have the redundancy be hierarchical and allow operations to continue smoothly in the case of failure (Mir, column 10, lines 44-49).

Regarding claim 20, the RE sends a GTP-C failure notification to each remaining GTP-C units of the GGSN is missing from Jappinen. However, Eyuboglu discloses in paragraph 75 that the RNCs communicate routing information, which would include notification of failure, for the purpose of load balancing. It would have been obvious to one skilled in the art at the time of the invention to use the method of Eyuboglu in the system of Jappinen. The motivation would be to load balance the connections over the RNCs.

Regarding claim 21, the GTP-C detected to have the least load is a spare, non-utilized, GTP-C unit of the GGSN is missing from Jappinen. However, Budhraj discloses in column 1, lines 24-32, a standby telecommunications module being switched to the IP address of the main module in the event of a failure. It would have been obvious to one skilled in the art at the time of the invention to use the method of Budhraj in the system of Jappinen. The motivation would be to load balance by putting re-started sessions on the non-utilized module, which would presumably have sufficient resources for the sessions (Eyuboglu, paragraph 72).

Regarding claim 22, the GTP-C detected to have the least load is a slave GTP-C selected among all active slave GTP-Cs of the GGSN missing from Jappinen.

However, Eyuboglu discloses in paragraph 70 that the new reassigned default RNCs are chosen from the active set of RNCs. It would have been obvious to one skilled in the art at the time of the invention to select the unit with the least load from the set of active units as is done in Eyuboglu in the system of Jappinen. The motivation would be to load balance the new connections (Eyuboglu, paragraph 72).

Regarding claim 23, before recovering the information related to the failed GTP-C/m from the remaining GTP-C units, the elected GTP-C closes all currently controlled Packet Data Protocol (PDP) Contexts related to its supported data sessions is disclosed in Jappinen, paragraph 30 (disclosing closing PDPs of failed sessions).

13. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jappinen in view of Eyuboglu in further view of Mir and Naron.

Regarding claim 19, the RE detects the failure or the shutdown of the GTP-C/m in the GGSN by detecting a lack of a heartbeat message sent by the failed GTP-C/m is missing from Jappinen. However, Naron discloses in column 11, lines 41-45, monitoring a heartbeat message to detect a system failure. It would have been obvious to one skilled in the art at the time of the invention to use the heartbeat message of Naron in the system of Eyuboglu and Jappinen. The motivation would be to monitor the health of the modules in the network (Eyuboglu, paragraph 70).

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia L Davis whose telephone number is (571) 272-3117. The examiner can normally be reached on 8:30 to 6, Monday to Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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